Claims 3-14 and 16-26 are rejected under 35 U.S.C. 101 as being an improper process claim. Claims 3 and 4 have been amended to recite specific steps involved in a process. Claims 5-14 and 21-26 depend from amended claim 3 and claims 16-20 depend from amended claim 4. The claims are now believed to be proper process claims in accordance with 35 U.S.C. 101. Accordingly, reconsideration of the rejection leading to its withdrawal is respectfully requested.

Claims 3-14 and 16-26 are rejected under 35 USC 112, first paragraph, as being non-enabling. Specifically, the rejection proffers that the specification does not disclose oxide versus surface tension data. Claims 3 and 4 have each been amended to recite, "deposited layer is solid and more hydrophilic than the surface of the object". Support for the amendment is found in the specification at page 5 line 23 to page 6 line 6, page 9 line 9 to page 10 line 7, page 11 lines 1-3, 16-17, and 24-28, and page 12, second paragraph. It is submitted that the amended claims are sufficiently enabled by the specification. Claims 5-14 and 21-26 depend from amended claim 3 and claims 16-20 depend from amended claim 4. Accordingly, reconsideration of the rejection in light of the amendments and remarks leading to its withdrawal and allowance of the claims is respectfully requested.

Claims 3-14 and 16-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite. Claim 3 has been amended to recite the specific steps. Independent claims 3 and 4 now recite active, positive steps delimiting how the use is practiced. Claims 5-14 and 21-26 depend from amended claim 3 and claims 16-20 depend from amended claim 4. Accordingly, reconsideration of the rejection in light of the amendment leading to its withdrawal is respectfully requested.

Claims 3-14 and 16-26 are further rejected under 35 U.S.C. 112, second paragraph as being indefinite. Specifically, the rejection proffers that claims 3 and 4 are indefinite because the meaning of "action of boiling water or water vapour" or "action of superheated water vapour" is unclear. Claims 3 has been amended to recite the steps in an active form. Claim 4 has been rewritten in independent form including active steps.

The rejection further proffers that claims 5, 6, 8, 9, 10, 11, 16, 17, and 18 are in an improper Markush format. Claims 5, 6, 8, 9, 10, 11, 16, 17, and 18 have been amended to correct the format. Claims 5-14 and 21-26 depend from amended claim 3 and claims 16-20 depend from amended claim 4. Reconsideration of the rejection in

light of the amendments, leading to withdraw of the rejection and allowance of the claims is requested.

Claims 3-14 and 16-26 are rejected under 35 U.S.C. 103 as being unpatentable over USP 4759805 to Saruwatari et al., FR 2100817, USP 3,730,783 to Streel, USP 3,255,035 to Clough, or AN 115:237352 in view of McGannon (The Making, Shaping and Treating of Steel, United States Steel). It is submitted that the McGannon reference fails to provide suggestion or motivation to modify the cited references to meet the requirements of independent claims 3 and 4. Moreover, it is submitted that the McGannon reference teaches away from a solid deposited layer that is more hydrophilic than the surface of an object, as is required by the independent claims.

The Examiner's statement that Saruwatari et al. FR 2100817, Streel Clough, and AN 115:237352 fail to "set forth to increase the surface tension of an object by the oxide coating" is acknowledged. McGannen fails to teach or suggest that the oxidation of elements deposited onto an object would increase that object's surface tension. At most, McGannen provides examples of "the surface tensions of some liquid metals and some slags". (p. 317, paragraph 4).

The Examiner's attention is directed to the temperatures given in the figure legends of McGannen. All of the legends of McGannen disclose surface tensions that have been determined at elevated temperatures (fig. 12-109, 1570°C; fig. 12-110, 1400°C; fig. 12-111, 1300-1600°C; fig. 12-112, 1500°C, fig. 12-113 silicate melts, and fig. 12-114 liquid iron). It is submitted that the data represented in these figures would not give any hint for the skilled artisan that the surface tension of objects can be increased by the oxidation of at least one element deposited onto the objects as claimed. Moreover, it is submitted that the temperatures of McGannen suggest a desire to maintain these materials in a liquid form. Accordingly, McGannen teaches away from a solid deposited layer that is more hydrophilic than the surface of the object.

It is respectfully submitted that McGannen cannot be said to provide suggestion or motivation to modify the cited to meet the requirements of claims 3 and 4. Further, even if the teachings of the cited references were combined, when taken a whole, either alone or in combination, they fail to disclose or suggest a use of a surface coating to increase the surface tension of objects having a surface, wherein the surface coating is obtained by the steps of "depositing a layer of at least one element

that can be oxidized with water or an alloy that can be oxidized with water on the surface to form a deposited layer, and subsequently applying boiling water or water vapour on the deposited layer, whereby the deposited layer is solid and more hydrophilic than the surface of the object", as required by amended claim 3. Claims 5-14 and 21-26 depend from claim 3.

Likewise, if the teachings of the cited references were combined, when taken a whole, either alone or in combination, they fail to disclose or suggest a use of a surface coating to increase the surface tension objects having a surface, wherein the surface coating is obtained by the steps of "depositing on the surface a layer of at least one element that can be oxidized with water or an alloy that can be oxidized with water and subsequently applying superheated water vapour to the deposited layer, whereby the deposited layer is solid and more hydrophilic than the surface of the object", as required by amended claim 4. Claims 16-20 depend from claim 4.

It is respectfully contended that the differences between the claimed invention and the cited art are such that Applicants' invention as a whole would not have been obvious to one of ordinary skill in the art at the time the invention was made. It is respectfully contended that the claimed invention meets the test of patentability under 35 U.S.C. 103(a). Entry of the amendments leading to reconsideration of the rejection of the claims and withdrawal of the rejection is respectfully requested.

The claims are believed to be in condition for allowance, and allowance of the application is respectfully requested. It is requested that if necessary, this paper be considered a Petition for Extension of time sufficient to effect a timely response, and that all fees due be charged to Deposit Account Number 50-0877 with reference to (RDID 0041 US).

Respectfully submitted,
The Law Office of Jill L. Woodburn, L.L.C.

Oct. 8, 2002
(Date)

Jill L. Woodburn
Registration No. 39,874

Version with Markings to Show Changes Made

3. (Amended) Use of a surface coating to increase the surface tension of objects having a surface, wherein the surface coating is obtained by the steps of:

[deposition of] depositing a layer of at least one element that can be oxidized with water or an alloy that can be oxidized with water on the surface to form a deposited layer, and

[subsequent action of] subsequently applying boiling water or water vapour on the deposited layer, whereby the deposited layer is solid and more hydrophilic than the surface of the object.

4. (Amended) Use of a surface coating [as claimed in claim 3, wherein the surface coating is obtained by deposition of] to increase the surface tension of objects having a surface, wherein the surface coating is obtained by the steps of:

depositing on the surface a layer of at least one element that can be oxidized with water or an alloy that can be oxidized with water and [subsequent action of]

subsequently applying superheated water vapour to the deposited layer, whereby the deposited layer is solid and more hydrophilic than the surface of the object.

5. (Amended) Use of a surface coating as claimed in claim 3, wherein the element is derived from [the following group of elements:] at least one element selected from the group consisting of Al, Si, Ti, V, Cr, Mn, Fe, Co, Ni, Zn, Ga, Ge, Zr, Nb, Cd, In, Sn, Sb.

6. (Amended) Use of a surface coating as claimed in claim 5, wherein the element is derived from [the following group of elements:] at least one element selected from the group consisting of Al, Si, Ti, Zr.

8. (Amended) Use of a surface coating as claimed in claim 3, wherein the alloy contains at least two components [from the following group of elements:] selected from the group of elements consisting of Al, Si, Ti, V, Cr, Mn, Fe, Co, Ni, Zn, Ga, Ge, Zr, Nb, Cd, In, Sn, Sb.

9. (Amended) Use of a surface coating as claimed in claim 3, wherein the alloy contains at least one component [from the following first group of elements:] selected from a first group of elements consisting of Al, Si, Ti, V, Cr, Mn, Fe, Co, Ni, Zn, Ga, Ge, Zr, Nb, Cd, In, Sn, Sb, which are alloyed with at least one element [from the following second group of elements:] selected from a second group of elements consisting of Mg, Ca, Sr, Ba.

10. (Amended) Use of a surface coating as claimed in claim 9, wherein the alloy contains at least one component [from the following first group of elements:] selected from a first group consisting of Al, Si, Ti, Zr, which is alloyed with at least one element [from the following second group of elements:] selected from a second group consisting of Mg, Ca, Sr, Ba.

11. (Amended) Use of a surface coating as claimed in claim 10, wherein the alloy is composed of Al which is alloyed with at least one element [from the following group of elements:] selected from the group consisting of Mg, Ca, Sr, Ba.

16. (Amended) Use of a surface coating as claimed in claim 4, wherein the element is derived from the [following group of elements:] elements selected from the group consisting of Al, Si, Ti, V, Cr, Mn, Fe, Co, Ni, Zn, Ga, Ge, Zr, Nb, Cd, In, Sn, Sb.

17. (Amended) Use of a surface coating as claimed in claim 4, wherein the alloy contains at least two components [from the following group of elements:] selected from elements in the group consisting of Al, Si, Ti, V, Cr, Mn, Fe, Co, Ni, Zn, Ga, Ge, Zr, Nb, Cd, In, Sn, Sb.

18. (Amended) Use of a surface coating as claimed in claim 4, wherein the alloy contains at least one component [from the following first group of elements:] selected from a first group consisting of Al, Si, Ti, V, Cr, Mn, Fe, Co, Ni, Zn, Ga, Ge, Zr, Nb, Cd, In, Sn, Sb, which are alloyed with at least one element [from the following second group of elements:] selected from a second group consisting of Mg, Ca, Sr, Ba.

Clean Version of Replacement Claims for Entry During Prosecution of US Application No. 09/555,618

3. Use of a surface coating to increase the surface tension of objects having a surface, wherein the surface coating is obtained by the steps of:

depositing a layer of at least one element that can be oxidized with water or an alloy that can be oxidized with water on the surface to form a deposited layer, and

subsequently applying boiling water or water vapour on the deposited layer, whereby the deposited layer is solid and more hydrophilic than the surface of the object.

4. Use of a surface coating to increase the surface tension of objects having a surface, wherein the surface coating is obtained by the steps of:

depositing on the surface a layer of at least one element that can be oxidized with water or an alloy that can be oxidized with water and

subsequently applying superheated water vapour to the deposited layer, whereby the deposited layer is solid and more hydrophilic than the surface of the object.

5. Use of a surface coating as claimed in claim 3, wherein the element is derived from at least one element selected from the group consisting of Al, Si, Ti, V, Cr, Mn, Fe, Co, Ni, Zn, Ga, Ge, Zr, Nb, Cd, In, Sn, Sb.

6. Use of a surface coating as claimed in claim 5, wherein the element is derived from at least one element selected from the group consisting of Al, Si, Ti, Zr.

7. Use of a surface coating as claimed in claim 6, wherein the element is Al.

8. Use of a surface coating as claimed in claim 3, wherein the alloy contains at least two components selected from the group of elements consisting of Al, Si, Ti, V, Cr, Mn, Fe, Co, Ni, Zn, Ga, Ge, Zr, Nb, Cd, In, Sn, Sb.

9. Use of a surface coating as claimed in claim 3, wherein the alloy contains at least one component selected from a first group of elements consisting of Al, Si, Ti, V, Cr, Mn, Fe, Co, Ni, Zn, Ga, Ge, Zr, Nb, Cd, In, Sn, Sb, which are alloyed with at least one element selected from a second group of elements consisting of Mg, Ca, Sr, Ba.

10. Use of a surface coating as claimed in claim 9, wherein the alloy contains at least one component selected from a first group consisting of Al, Si, Ti,

Zr, which is alloyed with at least one element selected from a second group consisting of Mg, Ca, Sr, Ba.

11. Use of a surface coating as claimed in claim 10, wherein the alloy is composed of Al which is alloyed with at least one element selected from the group consisting of Mg, Ca, Sr, Ba.

12. Use of a surface coating as claimed in claim 3, wherein the deposited layer has a thickness between 1 nm and 500 nm.

13. Use of a surface coating as claimed in claim 3, wherein the superficial oxide layer has a thickness between 0.1 nm and 500 nm.

14. Use of a surface coating as claimed in claim 13, wherein the superficial oxide layer has a thickness between 10 nm and 100 nm.

16. Use of a surface coating as claimed in claim 4, wherein the element is derived from the elements selected from the group consisting of Al, Si, Ti, V, Cr, Mn, Fe, Co, Ni, Zn, Ga, Ge, Zr, Nb, Cd, In, Sn, Sb.

17. Use of a surface coating as claimed in claim 4, wherein the alloy contains at least two components selected from elements in the group consisting of Al, Si, Ti, V, Cr, Mn, Fe, Co, Ni, Zn, Ga, Ge, Zr, Nb, Cd, In, Sn, Sb.

18. Use of a surface coating as claimed in claim 4, wherein the alloy contains at least one component selected from a first group consisting of Al, Si, Ti, V, Cr, Mn, Fe, Co, Ni, Zn, Ga, Ge, Zr, Nb, Cd, In, Sn, Sb, which are alloyed with at least one element selected from a second group consisting of Mg, Ca, Sr, Ba.

19. Use of a surface coating as claimed in claim 4, wherein the deposited layer has a thickness between 1 nm and 500 nm.

20. Use of a surface coating as claimed in claim 4, wherein the superficial oxide layer has a thickness between 0.1 nm and 500 nm.

21. Use of a surface coating as claimed in claim 5, wherein the deposited layer has a thickness between 1 nm and 500 nm.

22. Use of a surface coating as claimed in claim 5, wherein the superficial oxide layer has a thickness between 0.1 nm and 500 nm.

23. Use of a surface coating as claimed in claim 8, wherein the deposited layer has a thickness between 1 nm and 500 nm.

24. Use of a surface coating as claimed in claim 8, wherein the superficial oxide layer has a thickness between 0.1 nm and 500 nm.

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25. Use of a surface coating as claimed in claim 9, wherein the deposited layer has a thickness between 1 nm and 500 nm.

26. Use of a surface coating as claimed in claim 9, wherein the superficial oxide layer has a thickness between 0.1 nm and 500 nm.

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Marked Up Version of Replacement Abstract for Entry into U.S. Application Ser. No. 09/555,618

Abstract

"The invention concerns a" --A-- process --is provided-- for the production of a surface coating as well as the use of surface coatings to increase the surface tension of objects ", which is characterized in that the" --. The-- surface coating is obtained by depositing a layer of at least one element that can be oxidized with water or an alloy that can be oxidized with water "and subsequent action of" --. Subsequently, -- the deposited layer is subjected to -- boiling water or water vapour "on the deposited layer". --The element is generally derived from the following group of elements: Al, Si, Ti, V, Cr, Mn, Fe, Co, Ni, Zn, Ga, Ge, Zr, Nb, Cd, In, Sn, Sb.--